Medium-density fibreboard

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Medium-density fibreboard (MDF), is an engineered wood product formed by breaking down softwood into wood fibres, combining it with wax and resin, and forming panels by applying high temperature and pressure.

Large-scale production of MDF began in the 1980s. Its name derives from the distinction in densities of fibreboard. MDF typically has a density of around 800 kg/m^3. Low density fibreboard, such as caneite, ranges in density from 160 to 450 kg/m^3, while high density fibreboard, such as masonite, has a density of around 1000 kg/m^3. The same manufacturing process is used.

MDF is useful in many applications, particularly where particleboard was previously used. It is not useful for outdoor use because it will swell upon contact with water; nonetheless, it has better moisture tolerance than particleboard. Because MDF is fibre-based, it has a remarkably consistent structure. This quality makes it easy to machine or employ in woodworking applications. MDF is often used with melamine or wood veneers.

One contentious issue is the use of formaldehyde resins and the associated health risks. Thus, other resins are being introduced.

Engineered wood

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Engineered wood includes a range of derivative wood products which are manufactured by binding together wood strands, fibers, or veneers with adhesives to form composite materials. These products are engineered to precise design specifications which are tested to meet national or international standards.

Engineered wood products include plywood, medium density fibreboard (MDF), oriented strand board (OSB), particleboard, glued laminated timber (glulam), laminated veneer lumber (LVL), and structural I-beams. Engineered wood panels are also made from rye straw, wheat straw, or sugar cane rind; in which case they contain no actual wood.

Engineered wood products are used in a variety of applications, often replacing solid wood (lumber) due to a number of advantages. Because engineered wood is man-made, it can be designed to meet application-specific performance requirements. Unlike solid wood, large panels of engineered wood may be constructed from small trees. Further, engineered wood products are often stronger and less prone to humidity-induced warping. Although engineered wood products are resource efficient, they are more expensive to produce than solid lumber in terms of time, money, and energy.